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AYURVEDIC MANAGEMENT OF PROGRESSIVE SUPRANUCLEAR PALSY- A SINGLE CASE STUDY

Priya Bhat

Assistant professor, Department of Kayachikitsa, SDM institute of Ayurveda and Hospital, Bangalore 560056, Karnataka, India

Email: dr.priyabhat23@gmail.com

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ABSTRACT

Progressive supranuclear palsy, also called Steele-Richardson-Olszewski syndrome, is an uncommon brain disorder that causes serious problems with walking, balance and eye movements. The disorder results from deterioration of cells in areas of brain that control body movement and thinking. Progressive supranuclear palsy worsens over time and can lead to life-threatening complications, such as pneumonia and swallowing problems. There's no cure for progressive supranuclear palsy, so treatment focuses on managing the signs and symptoms. In the present case a 70 year old diagnosed of progressive supranuclear palsy was treated with ayurvedic therapeutic modalities like *abhyanga* & *sweda*, *shirobasti, rajayapana basti* and oral medications. This has yielded into significant improvement in post treatment status of patient.

Keywords: Progressive supra nuclear palsy, *Abhyanga, Shirobasti, Rajayapana basti*

INTRODUCTION

Progressive supranuclear palsy (PSP; or the Steele–Richardson–Olszewski syndrome) is a degenerative disease involving the gradual deterioration and death of specific volumes of the brain. Males and females are affected approximately equally and there is no racial, geographical or occupational predilection. Approximately six people per 100,000 populations have PSP[1]. The disease usually develops after the sixth decade of life, and the diagnosis is purely clinical.

Causes

The cause of progressive supranuclear palsy isn't known. The signs and symptoms of the disorder result from deterioration of cells in areas of brain, especially those that help to control body movements (midbrain) and thinking (frontal lobe). Researchers have found that the deteriorating brain cells of people with progressive supranuclear palsy have abnormal amounts of a protein called tau. Clumps of tau are also characteristic of other neurodegenerative disorders, such as Alzheimer's disease. Rarely, progressive supranuclear

palsy occurs within a family. But a genetic link isn't clear[2].

Signs and symptoms

The pattern of signs and symptoms can be quite different from person to person. The most frequent first symptom of PSP is a loss of balance while walking. Individuals may have unexplained falls or a stiffness and awkwardness in gait.

As the disease progresses, most people will begin to develop a blurring of vision and problems controlling eye movement. Individuals affected by PSP especially have trouble voluntarily shifting their gaze vertically and also can have trouble controlling their eyelids. This can lead to a need to move the head to look in different directions, involuntary closing of the eyes, prolonged or infrequent blinking, or difficulty in opening the eyes. Another common visual problem is an inability to maintain eye contact during a conversation. This can give the mistaken impression that the person is hostile or uninterested.

People with PSP often show alterations of mood and behavior, including depression and apathy. Some show changes in judgment, insight, and problem solving, and may have difficulty finding words. They may lose interest in ordinary pleasurable activities or show increased irritability and forgetfulness. Individuals may suddenly laugh or cry for no apparent reason, they may be apathetic, or they may have occasional angry outbursts, also for no apparent reason. Speech usually becomes slower and slurred and swallowing solid foods or liquids can be difficult. Other symptoms include slowed movement, monotone speech, and a mask-like facial expression. Since many symptoms of PSP are also seen in individuals with Parkinson's disease, particularly early in the disorder, PSP is often misdiagnosed as Parkinson's disease [3].

Diagnosis

No specific laboratory tests or imaging approaches currently exist to definitively diagnose PSP. The disease is often difficult to diagnose because its symptoms can be very much like those of other movement disorders, and because some of the most characteristic symptoms may develop late or not at all. An initial diagnosis is based on the person's medical history and a physical and neurological exam. Diagnostic scans such as magnetic resonance imaging may show shrinkage at the top of the brain stem.

There is currently no effective treatment for PSP, although scientists are searching for better ways to manage the disease. PSP symptoms usually do not respond to medications. Drugs prescribed to treat Parkinson's disease, such as ropinirole, rarely provide additional benefit. In some individuals the slowness, stiffness, and balance problems of PSP may respond to some degree to antiparkinsonian agents such as levodopa, but the effect is usually minimal and short-lasting[4].

Hence Ayurveda has a better role to play in the management of supranuclear palsy. Based on the symptoms it can be considered as a *dhatukshayaja vatavyadhi* or even term it as *kampa vata*

Below is a case of supranuclear palsy managed effectively with Ayurvedic treatments.

Case Report

A male patient aged 70 years who is a k/c/o HTN and DM type 2 from Chitradurga with opd no 129225 approached SDM institute of Ayurveda and hospital on 25/04/2018. His chief complaints were tremors in extremities, drooling of saliva, sluggish activities and bilateral knee pain. As per patient party, he showed less interest in all the activities and had reduced verbal communications. On examination his vitals were normal with Blood pressure being 130 /80 mm of Hg.

On observation, face was expressionless and mask-like. Patient had poor balance with the tendency to fall over backwards. He was able to walk only with support and gait was slow and wide based. Speech was sluggish. He used to fall abruptly on the chair while sitting down and was unable to get up from the chair without support. Ocular examination had no much findings. Patient was able to read, however the vision was blurred. Patient was assessed for cognitive impairment using Mini Mental Status Examination (MMSE) which showed mild deterioration of cognitive functions.

MRI done on 26/04/2018 revealed diffuse cerebral atrophy, mild atrophy of mid brain and ?progressive supranuclear palsy. Considering the clinical features

and the MRI impressions the case was diagnosed as progressive supranuclear palsy. Patient got admitted in the IPD of SDM institute of Ayurveda& Hospital on 27/4/18 with ipd number 0916-18.

Assessing subject on Āyurvedic parameters revealed him to be of *Vāta-pittaja prakrti* with *madhyama samhanana* (medium build) and normal *Jatharāgni* (appetite). *Dosha* involved is primarily *prana* and *vyana vata* with involvement of *rasavaha , asthi majjavaha* and *manovaha srotas.*

Pre-intervention outcome measures

For assessing disability, progressive supranuclear palsy rating scale (PSPRS) was used. It comprises of 28 items in six categories: daily activities (by history), behaviour, bulbar, ocular motor, limb motor and gait/midline. Scores range from 0 to 100.

Intervention

Patient was advised with *Ajamodadi churna* 5 gm BD with warm water B/F orally and *Dashamoola parisheka* was performed for 3 days. From 30/4/18 patient was advised *shirobasti* with *Ksheera bala taila* for 7 days, followed by *sarvanga abhyanaga* and *sweda (nadi sweda)* with *Ksheerabala taila* and *Mustadi rajayapana basti* in *yoga basti* pattern for a span of 8 days. Additional balance exercises were given to the patients under the supervision of physiotherapist.

Table 1: Showing the details of *Rajayapana basti* (*A- *anuvasana basti,* N- *niruha basti*)

Number of basti	1	2	3	4	5	6	7	8
Type of basti	A	N	A	N	A	N	A	A
Date	7/5/18	8/5/18	9/5/18	10/5/18	11/5/18	12/5/18	13/5/18	14/5/18

On 15/5/18 patient got discharged from hospital. At the time of discharge there was reduction in tremors and knee pain. Complaints of drooling of saliva and imbalance persisted. On discharge patient was advised Tab *Brihat vata chintamani rasa* 1 BD B/F with honey, *Dhanadanayadi kashaya* 15 ml TID A/F with water and *Kalyanaka grutha* ½ tsf with warm milk A/f at bed time for one month. On next follow up there were no tremors and patient was found to be active. As per patient party, he was able to communicate easily. He was advised to continue *Brihat vata chintamani* 1 BD B/F, *Dhanadanayadi kashaya* 15 ml TID A/F along with *Ashwagandha churna* (*Withania somnifera*) 100gm + *Kapikachu churna* (*Mucuna pruriens)* 100gm -½ tsf BD with milk A/F, for 1 month. On the subsequent follow up (after 6 months) patient had no tremors. Even drooling of saliva from mouth had stopped. There was reduction in balance problems. Patient is still on above mentioned medications.

Results

On comparison with pre-intervention conditions of the patient, there was a significant improvement in the patient post-treatment. The features which mainly showed improvement were: tendency of fall, drooling of saliva, sluggish speech. There was a marked improvement in tremors and cognitive functions.

Scores on PSPRS showed significant improvement. The patient scores in daily activities area reduced from 11 out of 24 to 3. In the mentation area scores reduced from 5 to 1 out of 16 points. Out of 8 for the bulbar area, scores reduced from 4 to 1. In the limb motor area which had a score of 16, score reduced from 6 to 2. Scores in the ocular motor area improved from 6 to 2 out of 16 and for the gait area scores reduced to 5 from 10 out of 20 points.

Table 2: Showing comparison between pre and post intervention in progressive supranuclear palsy rating scale

S l no	Criteria	Pre-treatment score	Post treatment score (15 days)	Follow up (6 months)
1	Withdrawal	2	1	1

2	Irritability	3	2	0
3	Dysphagia for solids	0	0	0
4	Using knife, buttoning shirts	3	1	1
5	Falls	2	1	1
6	Urinary incontinence	0	0	0
7	Sleep difficulty	1	0	0
8	Disorientation	3	0	0
9	Bradyphrenia	2	2	1
10	Emotional incontinence	0	0	0
11	Grasping/imitatative/utilizing behaviour	0	0	0
12	Dysarthria	4	3	1
13	Dysphagia	0	0	0
14	Voluntary upward command movement	2	1	1
15	Voluntary downward command movement	2	1	1
16	Voluntary left and right command movement	1	0	0
17	Eyelid dysfunction	1	0	0
18	Limb rigidity	1	0	0
19	Limb dystonia	0	0	0
20	Finger tapping	1	0	0
21	Toe tapping	1	1	1
22	Apraxia for hand movement	1	1	1
23	Tremors	2	0	0
24	Neck rigidity/ dystonia	1	1	0
25	Arising from chair	3	2	1
26	Gait	3	2	1
27	Postural stability	2	2	2
28	Sitting down	1	1	1
	Total score	42	22	14

DISCUSSION

Ajamodadi churna given internally and *dashmoola parisheka* done serve the purpose of *deepana* (appetizer) and *pachana* (digestive). Since PSP is a neuro degenerative disorder, *dhatu kshaya* (degeneration) can be considered as a prime pathology. Considering the derangement of *vata dosha* involved with *dhatu kshaya*, those treatment modalities which pacify *vata dosha* is useful in managing the condition. On these principles patient was advised with *abhyanga* and *sweda* with *ksheera bala taila*. *Ksheera bala taila* is *vatahara* and *balya*(increasing strength) in nature. The same oil was used for *shirobasti* as head is considered as site of *prana vayu* which has a primary role in the manifestation of PSP. In *Shirobasti*, oil poured over head is absorbed transversally into the scalp through the roots of hairs. In the loose areolar tissue of scalp, emissary veins are present. These are valve less and connect the superficial veins of the scalp with the diploic veins of the skull bones and with the intracranial sinuses[5]. This might be the route of absorption of the *basti dravya.*

Mustadi rajayapana basti has *balya* and *rasayana* (rejuvenation) and *dhatu vriddhikara* (strengthening

dhatus) properties[6]. The gastrointestinal system has a network of nerve fibers, which is known as 'Enteric nervous system (ENS) Similar to brain. ENS sends and receives impulses, record experiences and responds to various stimuli. Gut brain (ENS) is located in the sheaths of tissue lining the oesophagus to colon. ENS works in synergism with the CNS. Stimulation with *basti* (either by chemo or mechano receptors) may lead to activation of concerned part of CNS which precipitates result accordingly[7]

Dhanadanayadi kashaya is *vatahara*[8] and is indicated in the management of *kampa vata.* Since PSP is treated on the grounds of *kampa vata*, this drug was used. *Brihat vata chintamani rasa* is indicated in all disorders of *vata* including *kampa vata* and is *rasayana* and *balya* in nature[9]. *Kalyanaka grutha* one of the popular prescription for psychiatric disorders[10] was advised here to combat the emotional disturbance, irritability and other factors affecting in the mentation area of patients of PSP. *Kapikachu* is useful in neurological disorders and depression[11]. Hence *kapikachu churna* was administered considering the withdrawal and negative symptoms seen in the patient. It is also a source of L-DOPA (dopamine)[11] which is known to be effective in dystonia and tremors. *Kapikachu* is *balya* and *bruhmana*(nourishing)[12] hence has its effect on *dhatukshaya* pathology. *Ashwagandha* too is *vatahara* and *balya*. It also has *rasayana* properties. Studies have also proved the antidepressant and psychotropic activity of this drug[13].

CONCLUSION

The above mentioned combination of *shiro basti*, *sarvanga abhyanga sweda*, *mustadi rajayapana basti* along with oral medications has given positive result in the patient of PSP. Psychological manifestations like irritability reduced drastically in the patient. Also there is improvement in the higher mental functions like speech. Among the motor functions there were tremendous results like complete absence of tremors post treatment in the patient. The study has to be conducted on a larger scale for further conclusive evidence.

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